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EXAMINER
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GARLEN, ALEXANDER K

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* YASUO FUKAI, YOSHIYUKI TAKAHIRA,  
KOJI TAKAHASHI, YOSUKE MAEMURA, and  
YOSHITAKA TOMOMURA

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Appeal 2016-001429  
Application 13/297,008  
Technology Center 2800

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Before ROMULO H. DELMENDO, MONTÉ T. SQUIRE, and BRIAN D.  
RANGE, *Administrative Patent Judges*.

RANGE, *Administrative Patent Judge*.

DECISION ON APPEAL

SUMMARY

Appellants<sup>1</sup> appeal under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1 and 3–20. We have jurisdiction. 35 U.S.C. § 6(b). We REVERSE.

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<sup>1</sup> According to the Appellants, the real party in interest is Sharp Kabushiki Kaisha. Appeal Br. 2.

## STATEMENT OF THE CASE

Appellants describe the invention as a headlamp having a laser element and light emitting section for emitting fluorescence upon receiving the laser beam. Spec., Abstract. The headlamp could be used for a vehicle. Spec. 3:17–24. Claim 1, reproduced below with emphases added to certain key recitations, is illustrative of the claimed subject matter:

1. A light emitting device comprising:
  - an excitation light source for emitting excitation light;
  - a light emitting section, including a sealing material made from an inorganic material, for emitting fluorescence** upon receiving the excitation light emitted from the excitation light source; and
  - a heat releasing section having a contact surface and a bottom surface opposite from the contact surface, the contact surface of the heat releasing section being in contact with the light emitting section for releasing heat generated in the light emitting section in response to the excitation light emitted onto the light emitting section,**
    - wherein the light emitting section and the heat releasing section are provided so that the light emitting section is located entirely within a range of 0.2 mm or less from the contact surface,
    - the excitation light source is a semiconductor laser and provided on a side of the bottom surface with respect to the heat releasing section,
    - the heat releasing section is made of a rigid transparent material,**
    - the excitation light passes through the heat releasing section so that the light emitting section is irradiated with the excitation light, and
    - the heat releasing section is placed between the excitation light source and the light emitting section so that the excitation light enters a light incident surface of the light emitting section and fluorescent light is released from a**

**surface of the light emitting section, which is opposite from the light incident surface.**

Appeal Br.<sup>2</sup> 11 (Claims App'x).

#### REJECTION ON REFERENCES

On appeal, the Examiner maintains the rejection of claims 1 and 3–20 under 35 U.S.C. § 103 as unpatentable over Takeda et al., US 7,165,871 B2, Jan. 23, 2007 (hereinafter “Takeda”) in view of Suenaga, US 2004/0120155 A1, June 24, 2004, and further in view of Ouderkirk et al., US 2004/0145895 A1, July 29, 2004 (hereinafter “Ouderkirk”). Ans. 2.

#### ANALYSIS

The Examiner finds that Takeda discloses a vehicle headlamp with a light emitting section and most other recited elements of claim 1. Final Act. 3. The Examiner finds, however, that Takeda fails to disclose or suggest a heat releasing section as recited by claim 1. *Id.* The Examiner finds that Ouderkirk teaches a transparent sapphire heat releasing section as recited by claim 1 and concludes that it would have been obvious to provide the Ouderkirk heat sink on the light emitting section of Takeda “to provide adequate heat dissipation for such light emitting section while not blocking the light into or out of such section.” *Id.* at 7; *see also id.* at 4–5 (discussing Ouderkirk); Ans. 4–5 (providing same explanation for motivation to combine Ouderkirk and Takeda).

Appellants contend that a person of ordinary skill would have had no reason to combine Ouderkirk’s heat sink with Takeda. Appeal Br. 6–9. In

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<sup>2</sup> In this decision, we refer to the Final Office Action mailed April 15, 2015 (“Final Act.”), the Appeal Brief filed July 16, 2015 (“Appeal Br.”), the Examiner’s Answer mailed October 1, 2015 (“Ans.”), and the Reply Brief filed November 16, 2015 (“Reply Br.”).

particular, Appellants argue that the purpose of Ouderkirk's transparent heat sink is to prevent deterioration of polymeric SP and LP filters<sup>3</sup> that are not a part of the Takeda apparatus. *Id.* at 6–7; 9. A preponderance of the evidence supports Appellants' position. Ouderkirk describes its transparent heat sink as being between the phosphor layer (i.e., the light emitting section) and the interference filter (i.e., the polymeric LP filter). Ouderkirk ¶ 80. Ouderkirk explains that overheating may degrade its polymeric filters (*id.* at ¶ 84) and that placement of the transparent heat sink on the filter can improve the filter's lifetime (*id.* at ¶ 85).

In the Appeal Brief, Appellants further contend Takeda's device would be inoperable if Ouderkirk's SP reflector were added to it. Appeal Br. 7–8. The Examiner responds by stating that the proposed modification of Takeda would only add the transparent heat sink and not the polymeric SP or LP filter/reflectors. Ans. 3–4.

Thus, the Examiner's position is that even without adding the SP or LP filters, it would have been obvious to add the transparent heat sink to Takeda "in order to provide adequate heat dissipation for [Takeda's] light emitting section while not blocking the light into or out of such section" and to allow cooling of Takeda's reflector. Ans. 3. As explained above, however, a preponderance of the evidence suggests that the purpose of Ouderkirk's heat sink is to prevent overheating of the polymeric SP and LP

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<sup>3</sup> Ouderkirk refers to the LP and SP filters as both filters and reflectors. *See, e.g.*, Ouderkirk ¶¶ 36 (referring to LP reflector 24 and SP reflector 26), 68 (referring to LP and SP filters). Both terms appear to refer to the same aspect. *See, e.g.*, Ouderkirk ¶¶ 9 (explaining that LP reflector reflects UV light not absorbed by phosphor layer), 72 (explaining that LP filter does not reflect shortwave light).

filters. A preponderance of evidence in the present record does not establish that Takeda (which lacks the SP and LP filters) would benefit from Ouderkirk's heat sink or that reflector 114<sup>4</sup> of Takeda would be an inadequate heat sink for Takeda's purposes. Appeal Br. 8–9; Reply Br. 2–3. The Examiner has therefore not adequately established a reason why a person of skill would have add Ouderkirk's heat sink to Takeda. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (“a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the art.”). Accordingly, we do not sustain the Examiner's rejection of claim 1 or of claims that depend from claim 1.

Independent claim 20 includes the same recitations concerning a heat releasing section as claim 1. Thus, for the reasons explained above, we also do not sustain the Examiner's rejection of claim 20. We likewise do not sustain the rejection of claims depending from claim 1 or claim 20.

#### DECISION

For the above reasons, we reverse the Examiner's rejection of claims 1 and 3–20.

#### REVERSED

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<sup>4</sup> Appellants assert that Takeda's reflector 114 would be an adequate heat sink for fluorescent material 112 because it is metal. Appeal Br. 8–9. The Examiner appears to concede that reflector 114 is metal. Ans. 4 (referring to “metal reflector 114 of Takeda”). Moreover, in an earlier Office Action, the Examiner took the position that reflector 114 could be a heat releasing section. August 7, 2014, Office Action 3. We have not, however, identified a teaching of Takeda expressly stating whether or not reflector 114 is metal. In any event, our opinion does not rely on this particular fact.